

REMARKS

Claims 1-25, 96 and 98 are currently pending and listed herein to facilitate examination. Claims 1, 6, 10, 12-17, 19, 21, 22, 96 and 98 are currently amended, Claim 11 is canceled, and Claims 95 and 97 are withdrawn in this Response. Support for the amendments to Claims 1 and 10 are at least found on page 17 and 18 of the specification as originally filed.

Interview Summary

The claim amendments presented herein were forwarded to Examiner Salvoza on January 23, 2007. These amendments were discussed with Examiner Salvoza and Supervisory Examiner Campell on February 20, 2007 in a telephone interview. The Examiners noted in the interview that these proposed amendments appear to address the outstanding claim rejections.

Election/Restrictions

Applicants hereby acknowledge the withdrawal of Claims 95 and 97 by the examiner pursuant to 37 C.F.R. §1.142(b). As the Applicants timely traversed the restriction requirement in their response of August 14, 2006, Applicants reserve the right to petition the Director to review the restriction requirement as provided by 37 C.F.R. §1.144.

Claim Rejections - 35 U.S.C. § 112

1. Claims 1-10, and 96 were rejected by the Examiner under 35 U.S.C. §112, second paragraph as indefinite. In the Office Action, the Examiner alleged that claim language such as “5’ untranslated region of a segment” and “3’ UTR of a segment” is unclear.

To address these rejections, the Applicants have currently amended independent claims 1 and 10 to recite “a 5’ untranslated region (UTR) of a segmented negative strand RNA virus” and “a 3’ UTR of a segmented negative strand RNA virus”. Support for these amendments is at least found on page 18 of the specification as originally filed. In amending the claims in this manner, Applicants believe that the identity of these particular claim elements is made clear. Applicants therefore respectfully request that the rejections under 35 U.S.C. §112, second paragraph be withdrawn.

2. Claims 1-25, and 96 were rejected by the Examiner under 35 U.S.C. § 112, first paragraph as allegedly failing to meet the enablement requirement. In the Office Action, the Examiner alleged that the then pending claims were enabled only for inclusion of entire 5’ UTR and 3’ UTR elements of segmented negative strand RNA viruses but not for fragments or portions of the 5’ UTR and 3’ UTR elements. In rejecting the claims, the Examiner referred to the Wands Factors (In re Wands, 8 USPQ2d 1400; CAFC 1988). In the Action, the Examiner further alleged that the breadth of the claims, the amount of direction or guidance provided, the presence or absence of working examples, and the state of the prior art were the most relevant of the Wands Factors.

The Applicants believe the claims as currently amended (i.e. “a 5’ untranslated region (UTR) of a segment segmented negative strand RNA virus” and “a 3’ UTR of a segment segmented negative strand RNA virus”) are enabled by the application as filed and respectfully request reconsideration of these enablement rejections in view of the following observations:

First, Applicants point to the well developed state of the art in support of their position that the claims as currently amended were enabled by the specification at the time of filing. The Szymkowiak et al. reference (published January of 2003 and cited by the Examiner in the Office Action) reveals that both conserved and non-conserved elements required for 5’ and 3’ UTR function were well characterized at the time of filing. For example, Szymkowiak et al. repeatedly cite the Zheng et al (Virology 217:296, 1996) reference that identifies non-conserved elements of influenza 5’ and 3’ UTRs required for replication. Szymkowiak et al. also cite several other references that identify conserved elements of influenza 5’ and 3’ UTRs required for transcription. At the time of filing, one skilled in that art could thus have looked to references such as those cited in Szymkowiak et al. to identify both 5’ and 3’ UTRs of a segmented negative strand RNA viruses that could be used in the methods as claimed without engaging in undue experimentation. Finally, the Applicants respectfully note that the absence of citations to these or other references in the specification as filed that describe the well-known conserved and non-conserved elements of 5’ and 3’ UTRs of segmented negative strand RNA viruses is not in any way indicative of non-enablement since: “The specification need not disclose what is well-known to those skilled in the art and preferably omits that which is well-known to those skilled and already available to the public.” (see MPEP §2164.05, citing *In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991); *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*,

802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986), cert. denied, 480 U.S. 947 (1987); and Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co., 730 F.2d 1452, 1463, 221 USPQ 481, 489 (Fed. Cir. 1984)).

The well developed state of the art also speaks to the related issues of predictability, the amount of guidance required, and the need for multiple working examples (see MPEP §2164.05 (a)). Given the advanced state of the art in this field at the time of filing, the level of predictability associated with identifying 5' and 3' UTRs that could be used in the methods as claimed is clearly quite high. In other words, one skilled in the art could predict with reasonable certainty which 5' and 3' UTR elements would support replication and transcription based on information that was readily available at the time of filing, such as Szymkowiak et al. and references cited therein. Furthermore, one skilled in the art could easily establish that the predicted 5' and 3' UTR elements support "proper functioning and expression" of the reporter gene through routine experimentation described in the specification and references cited therein. Similarly, detailed direction or guidance as to minimum portions or conserved sequences in the 5' and 3' UTRs should not be required for enablement as indicated by the Examiner since this information was well known to those skilled in the art at the time of filing.

Finally, the working examples provided by the Applicants are more than adequate for enablement of the claimed methods given the nature of the invention and the advanced state of the art at the time of filing. In this instance, the Applicants are claiming a method for detecting negative strand viruses. Having demonstrated the use of an exemplary artificial negative strand segment in practicing this method, nothing other than routine experimentation would have been required for one skilled in the art to use other 5' or 3' UTRs that provide for expression of

operably linked reporter genes in order to practice this method. As previously noted, the characteristics of such 5' and 3' UTRs were well known at the time of filing and methods of determining the functionality of such elements were also routine at the time of filing. Applicants thus conclude that the claims as currently amended were fully enabled by the specification and therefore respectfully request that these rejections under 35 U.S.C. §112, first paragraph, be withdrawn.

3. Claims 1-25, and 96 were rejected by the Examiner under 35 U.S.C. §112, first paragraph, as allegedly failing to meet the enablement requirement. In the Office Action, the Examiner alleged that the then pending claims were not enabled for embodiments wherein the cell lacks at least one nucleocapsid protein and still indicates virus detection through expression of the reporter gene. In rejecting the claims, the Examiner referred to the Wands Factors (In re Wands, 8 USPQ2d 1400; CAFC 1988). In the Action, the Examiner further alleged that the breadth of the claims, the amount of direction or guidance provided, the presence or absence of working examples, and the state of the prior art were the most relevant of the Wands Factors.

In general, the Applicants agree with the Examiner's review of relevant art indicating that a minimal set of viral nucleoproteins is required for transcription and replication of viral RNAs in the infected cells. However, the Applicants respectfully disagree with the Examiners position that the invention as claimed somehow calls for a cell that lacks one nucleocapsid protein to express the reporter gene. In fact, the invention only calls for the cell that is provided in the initial step of the claimed methods (i.e. step (a) of claims 1 and 10) to lack at least one nucleocapsid protein. The cell that is provided in the initial step of the method is required to lack at least one nucleocapsid protein in order to *prevent* expression of the reporter gene in the

absence of super-infecting virus. Example 5 of the specification shows that cells lacking one of the nucleoproteins do not express the reporter gene of the artificial segment to any appreciable degree in the absence of virus in accord with the requirements of the claimed method. In the subsequent steps of the claimed method, the cell that is initially provided in step (a) is contacted by a sample suspected of comprising a segmented negative strand virus (i.e. step (b) of claims 1 and 10). If the sample does comprise such a virus, this virus will infect the cell provided in step (a) and will provide the full complement of nucleoproteins that are necessary for expression of the reporter gene. Expression of this reporter gene is then detected only in the final steps of the invention where all of the nucleoproteins are present in the cells that have been infected by virus. The method of the invention as claimed thus does not require that the cell provide for expression of the reporter gene in the absence of one nucleoprotein as indicated by the Examiner.

To further clarify dependent claims 96 and 98, Applicants have currently amended those claims to recite “wherein said genetically engineered vertebrate cell of step (a) lacks at least one nucleocapsid protein selected from the group consisting of PA, PB1, PB2 and NP”. Applicants believe that this amendment clearly indicates that it is only the cells that are provided in step (a) that lack at least one of the recite nucleocapsid proteins. As described above, provision of such cells in step (a) of the claimed method would provide for detection of the reporter gene in the final step of the claimed methods when these cells are infected with virus that is provided in step (b). Applicants thus conclude that claims 1-25, 96 and 98 as currently amended are fully enabled by the specification and therefore respectfully request that these rejections under 35 U.S.C. §112, first paragraph, be withdrawn.

CONCLUSION

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that a personal communication will expedite prosecution of this application, he is invited to telephone the undersigned at the number provided.

It is not believed that extensions of time are required beyond those, which may otherwise be provided for in the filing of this Amendment. However, in the event that additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned for under 37 C.F.R. §1.136(a), and any fees required therefore are hereby authorized to be charged to our Deposit Account 20-0823.

Respectfully submitted,

A handwritten signature in cursive script, reading "Charles P. Romano", is written over a horizontal line.

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